WHAT IS CLAIMED IS:

1. A method of aligning a plurality of transmission lanes with a plurality of reception lanes in a data transmission system, comprising:

transmitting a plurality of control symbols and lane identifiers on a plurality of sets of the transmission lanes;

time–division multiplexing the transmission lanes within each set of transmission lanes to provide a plurality of time–division multiplexed signals;

wave–division multiplexing the plurality of time–division multiplexed signals to provide a wave–division multiplexed signal;

transmitting the wave–division multiplexed signal across a data link;

demultiplexing the wave division multiplexed signal to reconstruct the time–division multiplexed signals;

demultiplexing the time–division multiplexed signals onto a plurality of sets of reception lanes;

monitoring one of the reception lanes in each set of reception lanes for receipt of a lane identifier;

upon receipt of a lane identifier, comparing the received lane identifier with the identity of the monitored reception lane; and

rotating a lane assignment within the set of reception lanes containing the monitored reception lane if the received lane identifier does not match an identity of the monitored reception lane.

2. The method of claim 1 further comprising:

adjusting a value of a bad lane identifier if the received lane identifier does not match the identity of the monitored reception lane; and

wherein the step of rotating the lane assignment is conducted only if the bad lane identifier reaches a predetermined value.

3. The method of claim 2 further comprising:

resetting the bad lane identifier after rotating the lane assignment.

4. The method of claim 2 further comprising:

returning to monitoring the monitored reception lane without rotating the lane assignment if, after incrementing, the bad lane identifier has not reached the predetermined value.

5. A method of conducting lane alignment comprising the steps of:

transmitting data in a byte–striped manner and transmitting control and identifier symbols in parallel on a plurality of sets of transmission lanes;

time–division multiplexing the transmission lanes within each set of transmission lanes to provide a plurality of time–division multiplexed signals;

wave–division multiplexing the time–division multiplexed signals to provide a wave–division multiplexed signal;

demultiplexing the wave–division multiplexed signal to recover the plurality of time division multiplexed signals;

demultiplexing the time–division multiplexed signals onto respective sets of reception lanes;

monitoring one of the reception lanes for receipt of a lane identifier;

comparing a received lane identifier with an identity of the monitored reception lane; and

rotating a lane assignment within the set containing the monitored reception lane if the lane identifier does not match the identity of the monitored reception lane.

6. The method of claim 5 further comprising:

incrementing a bad lane identifier if the received lane identifier does not match the identity of the monitored reception lane; and

wherein the step of rotating the lane assignment is conducted only if the bad lane identifier reaches a predetermined number.

7. The method of claim 6 further comprising:

resetting the bad lane identifier after rotating the lane assignment.

8. The method of claim 6 further comprising:

returning to monitoring the monitored reception lane without rotating the lane assignment if, after incrementing, the bad lane identifier has not reached the predetermined number.

9. A computer network device comprising:

a plurality of time–division multiplexers to generate a plurality of transmitted time–division multiplexed signals;

a wave–division multiplexer to generate a transmitted wave–division multiplexed signal from the plurality of transmitted time–division multiplexed signals;

a wave division demultiplexer to generate a plurality of received time division multiplexed signals from a received wave–division multiplexed signal;

a plurality of time–division demultiplexers to demultiplex the plurality of received time division multiplexed signals onto a plurality of sets of receive lanes; and

a control module for monitoring a receive lane, the control module in use:

monitoring the monitored receive lane for receipt of a lane identifier;

comparing a received lane identifier with an identity of the monitored receive lane; and

rotating a lane assignment within the set of receive lanes that includes the monitored lane if the received lane identifier does not match the identity of the monitored receive lane.

10. The computer network device of claim 9

wherein the control module increments a bad lane identifier if the received lane identifier does not match the identity of the monitored receive lane; and

wherein the rotation of the lane assignment is conducted only if the bad lane identifier reaches a predetermined value.

11. The computer network device of claim 10 wherein the control module resets the bad lane identifier after rotating the lane assignment.

12. The computer network device of claim 10 wherein the control module returns to monitoring the monitored receive lane without rotating the lane assignment if, after incrementing, the bad lane identifier has not reached the predetermined value.

13. The computer network device of claim 9 wherein the plurality of time–division multiplexers in use receive data that is byte streamed and control and identifier symbols that are transmitted in parallel.

14. The computer network device of claim 13 wherein the plurality of time–division multiplexers conduct time–division multiplexing at a bit level.

15. The computer network device of claim 9 wherein the control module operates at a protocol–unaware level of the computer network device, and wherein control and lane identifier symbols are transmitted by a protocol–aware level of the computer network device.

16. The computer network device of claim 15 wherein the protocol–aware level of the computer network device operates on an Infiniband protocol.

17. The computer network device of claim 16 wherein the control module in use monitors the monitored receive lane for receipt of a COMMA control symbol.

18. The computer network device of claim 17 wherein the control module in use returns to monitoring the monitored receive lane if a lane identifier is not received after the COMMA control symbol.

19. The computer network device of claim 15 wherein in use a plurality of ordered sets are transmitted by the protocol–aware level upon link initialization, training or error recovery, at least one of the ordered sets including a lane identifier.